

CLAIMS

1. A digital equipment system comprising:

a. a host for sending commands to read or write files having sectors of information, each sector having and being modifiable on a bit-by-bit, byte-by-byte or word-by-word basis, said host being operative to receive responses to said commands;

5 b. a controller device responsive to said commands, and including,

one-time-programmable nonvolatile memory for storing information organized into sectors, based on commands received from the host and upon receiving commands from the host to re-write a sector, the controller device for re-writing said sector on a bit-by-bit, byte-by-byte or word-for-word basis.

2. A digital equipment system as recited in claim 1 wherein said one-time-programmable nonvolatile memory includes a system area and a data area, said system area for storing information pertaining to the organization of the information stored or to be stored in the data area.

3. A digital equipment system as recited in claim 2 wherein said sytem area includes storage areas for including Original Engineering Manufacturer (OEM) identification/Bidirectional Input/Output System (BIOS), a File Allocation Table (FAT) 1, a FAT 2 and root disk directory information.

4. A digital equipment system as recited in claim 1 wherein said controller device further includes a first buffer for storing a host-provided sector and a second buffer for storing sectors stored or to be stored in the one-time-programmable nonvolatile memory.

1 5. A digital equipment system as recited in claim 4 further including a comparator coupled
2 between said first and second buffer for comparing a sector to be modified or accessed by the
3 host with those sectors to which information has been previously written.

1 6. A digital equipment system as recited in claim 1 wherein during power-up, said controller
2 device for identifying the end-of-file, wherein the location following the location in which
3 the end-of-file resides is identified as the location for the start-of-file of a new file to be
4 stored.

1 7. A digital equipment system as recited in claim 6 wherein said end-of-file is identified by the
2 use of a flag.

1 8. A digital equipment system as recited in claim 1 wherein said files are digital photographs.

1 9. A digital equipment system as recited in claim 1 wherein said files are archives.

1 10. A digital equipment system as recited in claim 1 wherein said controller device maintains a
2 correlation between logical addresses and physical addresses for translating host-provided
3 addresses to addresses recognized by the one-time-programmable nonvolatile memory.

1 11. A digital equipment system as recited in claim 10 wherein said controller for maintaining
2 track of defective locations within the one-time-programmable nonvolatile memory.

1 12. A digital equipment system comprising:

2 a. a host for sending commands to read or write files having sectors of information, said
3 host being operative to receive responses to said commands;

4 b. a controller device responsive to said commands, and including,

5 one-time-programmable nonvolatile memory for storing information organized into
6 sectors, based on commands received from the host, and upon commands from the host to re-
7 write a sector, said one-time-programmable nonvolatile memory including a spare area, said
8 controller for mapping sectors being re-written to spare area.

1 13. A digital equipment system as recited in claim 12 wherein said one-time-programmable
2 nonvolatile memory further includes a system area and a data area.

1 14. A digital equipment system as recited in claim 13 wherein said controller device for
2 identifying a start-of-file location and an end-of-file location and a defective sector location
3 within the one-time-programmable nonvolatile memory, the latter of which is skipped over
4 when writing sectors.

1 15. A digital equipment system as recited in claim 14 wherein the information that was to be
2 written to the defective sector is instead written to the spare area location.
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4 16. A digital equipment system as recited in claim 12 wherein said controller for determining if
5 there is no start-of-file identifier at a location following a corrupted sector or there is no end-
6 of-file in the rest of the one-time-programmable nonvolatile memory, such location
7 identified as a corrupted sector due to power failure and designated accordingly so as to
8 prevent future storage of information therein.

1 17. A digital equipment system comprising:

2 a. a host for sending commands to read or write files, said host being operative to receive
3 responses to said commands;

4 b. a controller device responsive to said commands, and including,

5 one-time-programmable nonvolatile memory for storing files and identifying the
6 start-of-file and end-of-file for a file being stored within the one-time-programmable
7 memory, wherein during power-up, said controller device for identifying the end-of-file of a
8 stored file, the location following the location in which the end-of-file resides being
9 identified as the location for the start-of-file of a new file to be stored.

1 18. A digital equipment system comprising:

2 a. a host for sending commands to read or write files having sectors of information, said
3 host being operative to receive responses to said commands;

4 b. a controller device responsive to said commands, and including,

5 one-time-programmable nonvolatile memory having spare locations for storing sector
6 information, said one-time-programmable nonvolatile memory for storing information
7 organized into sectors based on commands received from the host and upon receiving a
8 command from the host to re-write or update a sector, the controller device for writing the
9 updated sector to a spare location.

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1 19. A digital equipment system comprising:

2 a. a host for sending commands to read or write files having sectors of information, each
3 sector having associated therewith an error correction code (ECC) indicative of the
4 corruption of sector information, said host being operative to receive responses to said
5 commands;

6 b. a controller device responsive to said commands, and including,

7 one-time-programmable nonvolatile memory for storing information organized into
8 sectors, wherein said controller checks the ECC of a particular sector for a determination of
9 whether or not the particular sector is corrupted and if so, reads the information stored within
10 the next sector and determines if the next sector information is in a non-programmable state
11 and if so or the ECC associated with the next sector indicates that the next sector information
12 is corrupt, the controller device identifies an end-of-file.